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Dictionary: Last updated 07/18/2008 / Priority:

CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1] The circuit board for cameras which has connected the image sensor is connected to the circuit board for portable devices, and [said circuit board for cameras] The optical apparatus unit is carried in the position which can picturize a photographic subject to said image sensor. Wire bonding of said image sensor is carried out to the contact button part currently formed in the perimeter part of said circuit board for cameras, and [said optical apparatus unit] Have a tubed part, contact said circuit board for cameras by the end face of the tubed part concerned, paste said circuit board for cameras using adhesives, and / said adhesives The camera for portable devices characterized by having been applied toward the inner side from the inner skin of said tubed part, and having resulted in the terminal area of said wire by which wire bonding was carried out, and said contact button part.

[Claim 2] The camera for portable devices characterized by establishing the slot for said adhesives restoration in the inner circumference corner of said end face in Claim 1.

[Claim 3] The circuit board for cameras which has connected the image sensor is connected to the circuit board for portable devices, and [said circuit board for cameras] The optical apparatus unit is carried in the position which can picturize a photographic subject to said image sensor, and [said optical apparatus unit] The camera for portable devices characterized by having a tubed part, contacting said circuit board for cameras by the end face of the tubed part concerned, pasting said circuit board for cameras using adhesives, and establishing the slot for said adhesives restoration in the perimeter corner of said end face.

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to the camera carried in portable devices, such as a cellular-phone machine and a notebook computer.

[0002]

[Description of the Prior Art] With this conventional seed camera, as shown in drawing 5 , while the image sensor B is connected to the circuit board A for cameras, the optical apparatus unit C is carried in the circuit board A for cameras. And the optical apparatus unit C counters the light sensing portion b prepared in the center of the image sensor B, and holds light filter E while it holds the light elements D, such as a lens. The

optical apparatus unit C contacts the circuit board A for cameras by the end face of the tubed part which projects toward the circuit board A for cameras, and is pasted up using Adhesives F.

[0003]

[Problem to be solved by the invention] Since Adhesives F are made to apply only to the end face of a tubed part in such composition, adhesion area is narrow and adhesion intensity is not fully obtained. Then, if the amount of applications of Adhesives F is increased, it applies to an end face and the circuit board A for cameras is pushed and pasted. The adhesives F1 which Adhesives F protruded unequally towards the inner side and outside of an end face, and protruded towards the inner side result on the light sensing portion b of the image sensor B. The problem to which the quality of the image data which the image sensor B processes falls, and the adhesives F2 protruded towards the outside cover the contact button part a prepared in the perimeter part and end face of the circuit board A for cameras. Problems, such as making impossible the flow between the terminals of the contact button part a and other non-illustrated circuit terminals, are produced, and there is a problem that it is difficult to fully apply a proper quantity of adhesives with profit, about adhesion intensity.

[0004] Then, this invention prevents a projection of the adhesives to the position which does not mean it as only a desired quantity fully applies adhesion intensity to the position of the request of adhesives with profit.

[0005]

[Means for solving problem] The camera for portable devices of this invention is connected to the circuit board for portable devices by the circuit board for cameras which has connected the image sensor, and [said circuit board for cameras] The optical apparatus unit is carried in the position which can picturize a photographic subject to said image sensor. Wire bonding of said image sensor is carried out to the contact button part currently formed in the perimeter part of said circuit board for cameras, and [said optical apparatus unit] Have a tubed part, contact said circuit board for cameras by the end face of the tubed part concerned, paste said circuit board for cameras using adhesives, and / said adhesives It is applied toward the inner side from the inner skin of said tubed part, and is characterized by having resulted in the terminal area of said wire by which wire bonding was carried out, and said contact button part. Since the adhesives on which an optical apparatus unit and the circuit board for cameras are pasted up have resulted in the terminal area of a wire and a contact button part by this composition Though become possible to extend the adhesion area by the side of the circuit board for cameras, and the adhesion intensity of an optical apparatus unit and the circuit board for cameras can fully be obtained, and an image sensor moves by operation of a certain external force and power attains to a wire The terminal area of a wire and a contact button part cannot dissociate, and switch-on can be maintained.

[0006] In the inner circumference corner of said end face, it is desirable that the slot for said adhesives restoration is prepared, this is enabled to extend the adhesion area by the side of an optical apparatus unit, and the adhesion intensity of an optical apparatus unit and the circuit board for cameras can fully be obtained. Moreover, since it can perform filling up a slot with a fixed quantity of adhesives easily and adhesives are not applied to an end face, adhesives can prevent overflowing into the outside of a tubed part.

[0007] Moreover, the circuit board for cameras which has connected the image sensor is connected to the circuit board for portable devices, and [said circuit board for cameras] The optical apparatus unit is carried in the position which can picturize a photographic subject to said image sensor, and [said optical apparatus

unit] It has a tubed part, said circuit board for cameras is contacted by the end face of the tubed part concerned, said circuit board for cameras is pasted using adhesives, and it is characterized by preparing the slot for said adhesives restoration at the perimeter corner of said end face. By this composition, it becomes possible to extend the adhesion area by the side of an optical apparatus unit, and the adhesion intensity of an optical apparatus unit and the circuit board for cameras can fully be obtained. Moreover, since a slot can be filled up with a fixed quantity of adhesives and adhesives are not applied to an end face, adhesives can prevent overflowing into the inner side of a tubed part.

[0008]

[Mode for carrying out the invention] One form of operation of this invention is explained with reference to Drawings.

[0009] As shown in drawing 1, many contact button parts 11 are formed in the end face of the circuit board 1 for cameras in line. This contact button part 11 forms a circuit pattern in the surface and the back, and forms an end-face through hole in the end of this circuit pattern. Into an end-face through hole, for example, the copper paste which is conductive part material is embedded, a gilding layer is formed in the circuit pattern of the surface and the back, and the surface of a copper paste, and it is considered as the contact button part 11. For this reason, the contact button part 11 is formed in a flat side in line without becoming a crevice at the end face of the circuit board 1 for cameras.

[0010] The crevice 1a which stores the image sensor 2 is formed in the upper surface central part of the circuit board 1 for cameras, and the hole parts 1b and 1c for positioning the below-mentioned optical apparatus unit 3 are formed in the corner on a diagonal line. The hole part 1c is slightly formed in the direction of a diagonal line in the long hole, and it enables it to have corresponded to few errors of the optical apparatus unit 3. Storage fixation of the image sensor 2 is carried out into Crevice 1a, and the light sensing portion 2a is formed in the center of the upper surface of the image sensor 2. Wire bonding is carried out using the wire 2b indicated to be the terminal area which is not illustrated [of the image sensor 2], and the contact button part 11 of the circuit board 1 for cameras to drawing 2.

[0011] On the circuit board 1 for cameras, the optical apparatus unit 3 is carried in opposite with the image sensor 2. For positioning with the circuit board 1 for cameras, and the optical apparatus unit 3, the hole parts 1b and 1c are formed in the corner on the diagonal line of the circuit board 1 for cameras as mentioned above, and from the optical apparatus unit 3 side, the below-mentioned positioning projection was made to project, and both were made to fit in and are positioned.

[0012] As shown in drawing 2, the optical apparatus unit 3 constitutes the holder holding the light element of lens 31 grade from two members, the 1st holder 32 and the 2nd holder 33, and consists of this holder and a control member 34 which presses down a lens 31. A holder screws the 1st holder 32 and the 2nd holder 33, and is enabling adjustment of the length of the direction of an optic axis. That is, a lens 31 is made to hold to the 1st holder 32, and it presses down to the piece 32a of connection which made the upper part project from the upper surface of the 1st holder 32, and is pressing down impossible [escape from a lens 31] by making the crevice 34a of a member 34 fit in, and making it stop mutually. The converging section 34b is formed in the center of the upper surface of the control member 34. The cylinder part 32b is projected in the perimeter part of the 1st holder 32 below, it has prepared in it, and the female screw part 32c is formed in the inner skin of the cylinder part 32b.

[0013] The 2nd holder 33 screwed in the 1st holder 32 projects and forms the cylinder part 33a up, and the

male screw part 33b by which screw **** is carried out with the female screw part 32c is formed in the peripheral face of the cylinder part 33a. By the thing of the female screw part 32c of the 1st holder 32, and the male screw part 33b of the 2nd holder 33 for which it is made to fight and quantity is adjusted, the distance between a lens 31 and a light sensing portion 2a can be adjusted, and a unite lump of what is called a focus is possible.

[0014] The light filters 35, such as an infrared cut filter, are held so that it may counter with a lens 31 and may counter with the image sensor 2 by the 2nd holder 33. The 2nd holder 33 is countered with a lens 31, Opening 33c is formed, 33d of filter stowages were established in the undersurface side around Opening 33c, the light filter 35 was stored here, and it has pasted up using adhesives.

[0015] Projecting a tubed part 33e in a lower part from the 2nd holder 33, the end face of a tubed part 33e contacts the circuit board 1 for cameras. 33f of positioning projections are turned to the diagonal line position of a tubed part 33e below, and are made to have projected in it in the position which can fit into the hole parts 1b and 1c prepared in the diagonal line position of the circuit board 1 for cameras for positioning between a holder and the circuit board 1 for cameras. The optical apparatus unit 3 is positioned through the 2nd holder 33 by making 33f of positioning projections fit into the hole parts 1b and 1c.

[0016] It faces pasting up the optical apparatus unit 3 on the circuit board 1 for cameras, adhesives 36 are applied toward the inner side [all the circumferences of the inner circumference of a tubed part 33e] from the inner skin, the optical apparatus unit 3 is positioned to the circuit board 1 for cameras, and it presses to the circuit board 1 for cameras. While adhesives 36 paste up a tubed part 33e and the upper surface of the circuit board 1 for cameras, both are pasted up very much on the terminal area of the Wire 2b and the contact button part 11 by which wire bonding was carried out, and, thereby, a camera unit consists of insides of a tubed part 33e.

[0017] Thus, it becomes possible, if adhesives 36 are formed to extend the adhesion area by the side of the circuit board 1 for cameras. Since the adhesion intensity of the optical apparatus unit 3 and the circuit board 1 for cameras can fully be obtained and adhesives 36 do not overflow into the exterior of the end face of a tubed part 33e, the perimeter form of the circuit board 1 for cameras can be miniaturized in a grade almost equal to a tubed part 33e. Moreover, since the terminal area of Wire 2b and the contact button part 11 pastes up with adhesives 36 Even if the image sensor 2 stored with the crevice moves by operation of a certain external force into Crevice 1a and Wire 2b is pulled, Wire 2b cannot dissociate from the contact button part 11, and switch-on can be maintained. In addition, after hardening the adhesives 36 to be used, it is desirable that it is what has moderate elasticity. Moreover, it is desirable to use adhesives whose expansion coefficient of the circuit board 1 for cameras and the adhesives after hardening is equal. When above by this, even if Wire 2b was pulled, when elasticity is in the hardened adhesives, the danger that Wire 2b will be cut between adhesives and Wire 2b becomes low. Moreover, since adhesives 36 also carry out same modification with modification of the circuit board 1 for cameras even if the circuit board 1 for cameras changes by change of temperature conditions, it is changeless to the terminal area of Wire 2b and a contact button part, and normal switch-on is maintained.

[0018] As shown in drawing 2 , the circuit board 5 for portable devices is formed in the inside of the case for non-illustrated portable devices fixed, and the socket part 5a into which the circuit board 1 for cameras can fit is provided in the circuit board 5 for portable devices. The terminal area which is not illustrated [through which it flows in contact with the contact button part 11 to the inside of the socket part 5a] is prepared. After

the circuit board 1 for cameras fitted into the socket part 5a and the contact button part 11 and the terminal area have flowed, the direction of this flow is the direction of a field of substrates 1 and 5.

[0019] Drawing 3 shows other forms of operation of this invention, and 33g of slots for adhesives restoration are established in the inner circumference corner of the tubed part 33e. Application restoration of the adhesives 36 is carried out into Slot 33g when pasting up the optical apparatus unit 3 and the circuit board 1 for cameras, the optical apparatus unit 3 is positioned to the circuit board 1 for cameras, and it presses to the circuit board 1 for cameras. According to such composition, it becomes possible to extend the adhesion area by the side of the optical apparatus unit 3, and the adhesion intensity of the optical apparatus unit 3 and the circuit board 1 for cameras can fully be obtained. Moreover, since the amount of applications is easily defined by 33g of slots and adhesives 36 are not applied to the end face of a tubed part 33e If quantity which adhesives do not protrude into the exterior of an end face and is protruded into the inside of an end face is lessened, it is easy to keep adhesives also from resulting in the terminal area of Wire 2b and the contact button part 11. In addition, the same mark is substantially given to the same part with drawing 2 .

[0020] Drawing 4 shows the form of further others of operation of this invention, covers the perimeter corner of a tubed part 33e at the circumferences of all the, and 33h of slots for adhesives restoration are prepared. Application restoration of the adhesives 36 is carried out into Slot 33h when pasting up the optical apparatus unit 3 and the circuit board 1 for cameras, the optical apparatus unit 3 is positioned to the circuit board 1 for cameras, and it presses to the circuit board 1 for cameras. According to such composition, it becomes possible to extend the adhesion area by the side of the optical apparatus unit 3, and the adhesion intensity of the optical apparatus unit 3 and the circuit board 1 for cameras can fully be obtained. Moreover, since the amount of applications is easily defined by 33h of slots and adhesives 36 are not applied to the end face of a tubed part 33e, if quantity which adhesives do not protrude into the inside of an end face, and is protruded into the exterior of an end face is lessened, it will flow into the peripheral face of the contact button part 11, and a flow will not be spoiled. In consideration of safety, the perimeter form of the circuit board 1 for cameras is greatly illustrated a little rather than the thing of drawing 1 - drawing 3 . In addition, the same mark is substantially given to the same part with drawing 2 .

[0021]

[Effect of the Invention] As explained above, this invention faces the end face of the tubed part of an optical apparatus unit pasting up using adhesives in contact with the circuit board for cameras. Since it was applied toward the inner side from the inner skin of the tubed part and he is trying to have resulted in the terminal area of the wire and contact button part by which wire bonding was carried out It becomes possible to extend the adhesion area by the side of the circuit board for cameras, and the adhesion intensity of an optical apparatus unit and the circuit board for cameras can fully be obtained. And though an image sensor moves by operation of a certain external force and power attains to a wire, the terminal area of a wire and a contact button part does not dissociate, it is stabilized and switch-on can be maintained. Moreover, since the slot for adhesives restoration is established in the inner circumference corner or perimeter corner of the end face It can prevent that can perform easily that become possible to extend the adhesion area by the side of an optical apparatus unit, and can fully obtain the adhesion intensity of an optical apparatus unit and the circuit board for cameras, and only a fixed quantity applies adhesives, and adhesives overflow into the position which is not meant.

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Notes:

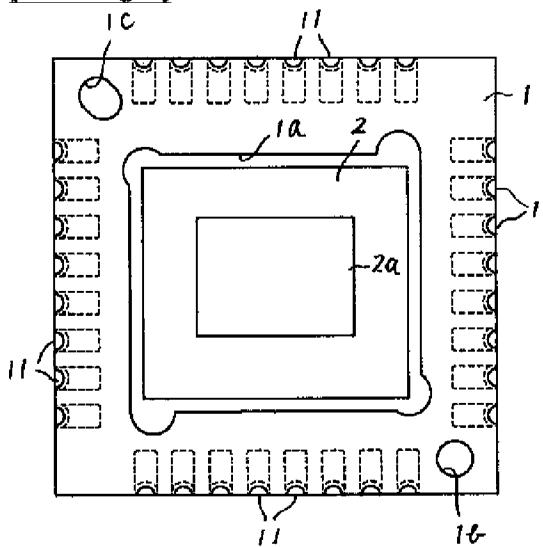
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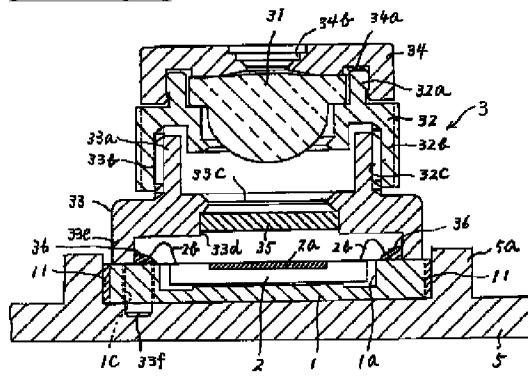
Dictionary: Last updated 07/18/2008 / Priority:

DRAWINGS

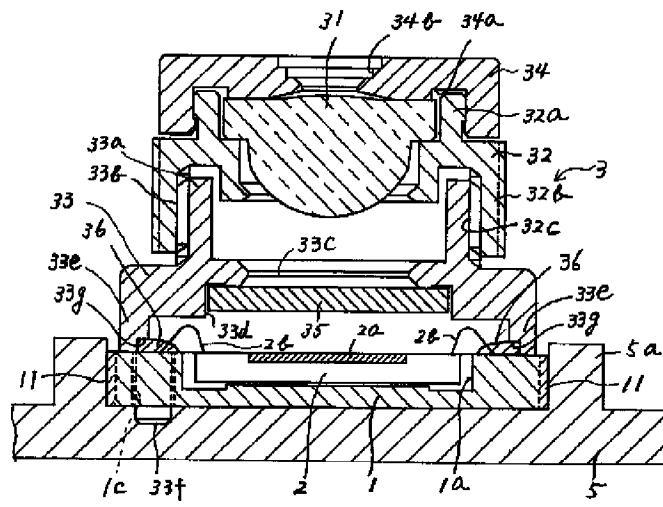
[Drawing 1]



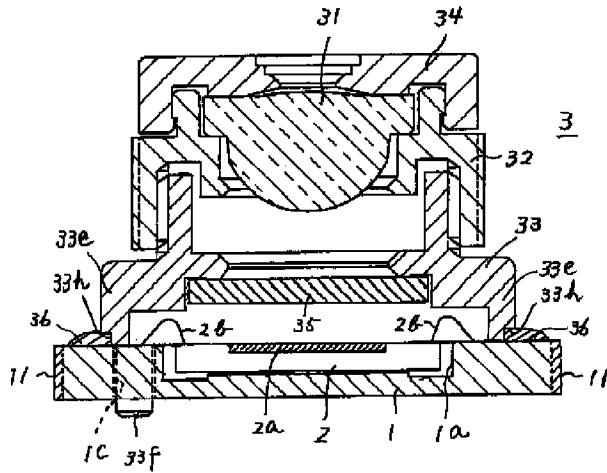
[Drawing 2]



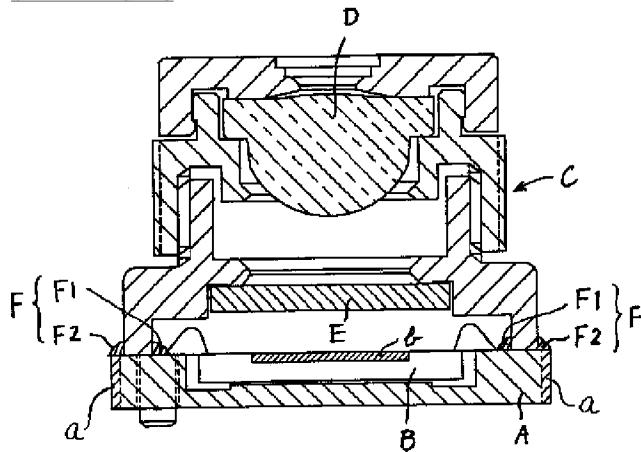
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]